and remove access port cap **162** by manual manipulation.

In a configuration similar to the above described obturator embodiment, the distal portion of obturator **164** is conical in shape, and has a taper angle greater than the taper angle of conical portion **144**. When inserted in the hemostatic valve, obturator **164** substantially fills the conically shaped lumen of diaphragm **144** and prevents leakage without producing a plunger effect that would push air or thrombus through the valve into the cannula blood flow path. It also prevents accumulation of blood in the lumen of access port hub **134** that could thrombose over time.

Numerous other embodiments and modification will be apparent to those skilled in the art and all such obvious variants are intended to be covered by this patent. For example, the hemostatic valve may comprise one or more passive self-closing valves, open-hole valves, active valves (e.g., a Touhy Borst valve), or combinations thereof. Selection of a specific valve or combination of valves in accordance with a desired flexible or rigid Y-shaped cannula body application will be obvious to those skilled in the art. Also, the Y-shaped cannula body could comprise a rigid molded shell (e.g., plastic or metal) having internal components composed of biocompatible materials (e.g., USP Class IV plastic, rubber or elastomeric materials). These components, e.g., lumen walls and valves, may be configured and fixed by known methods, including, inter alia, fiction fitting, bonding, threading, interlocking, and combinations thereof.

In another aspect of the present invention, the cannula body could be configured to include three or more access ports, e.g., a combination of a primary access port and two or more secondary access ports, a combination of a secondary access port and two or more primary access ports, or a combination of two or more first access ports and two or more secondary access ports.

In other aspects of the present invention, the cannula may be used for combined percutaneous venous or surgical procedures. For example, during open-heart surgery it may be desirable to access the interior of the heart, coronary arteries or veins, or other arteries or veins for various medical procedures. A cannula of the present invention could be inserted through a puncture hole in an exposed heart chamber, artery or vein and, in a procedure similar to the percutaneous procedures described above, various catheters could be fed through the cannula and directed to the appropriate site for performing a combined medical procedure, e.g., coronary retroperfusion and bypass. Accordingly, the term percutaneous, as used herein, may include insertion of the cannula through a puncture in an artery or vein exposed during surgery. Other combined surgical or venous applications will be readily apparent to those skilled in the art.

It will be understood that the above description is illustrative only. It is not intended to limit the scope of the present invention. The following claims define the scope of protection and are to be interpreted in sufficient breadth as to cover and encompass all variants, modifications and alternatives which would reasonably occur to those of ordinary skill in the art.

What is claimed is:

1. A cannula adapted for percutaneous insertion into the body of a patient and comprising percutaneous insertion means and a cannula body, said cannula body comprising

a common leg having a distal end, a proximal end and a common lumen therethrough defined by a common lumen wall, said common lumen being in fluid communication with said percutaneous insertion means,

a primary access port leg having a primary lumen defined by a primary lumen wall, said primary lumen being in fluid communication with said common lumen and forming a continuous blood flow path therewith,

a secondary access port leg having a secondary lumen defined by a secondary lumen wall, and

hemostasis means for providing access for percutaneous insertion of a catheter through said secondary lumen and said blood flow path, and for preventing a blood flow from said blood flow path through said secondary lumen.

2. The cannula recited in claim **1**, wherein said cannula body is formed of a flexible material.

3. The cannula recited in claim **1**, wherein said cannula body is formed of a single-piece of elastomeric material.

4. The cannula recited in claim **1**, wherein said hemostasis means comprises a hemostatic valve.

5. The cannula recited in claim **4**, wherein said hemostatic valve comprises a passive self-closing valve.

6. The cannula recited in claim **4**, wherein said hemostatic valve comprises a duck-bill valve.

7. The cannula recited in claim **4**, wherein said hemostatic valve comprises an open-hole valve.

8. The cannula recited in claim **4**, wherein said hemostatic valve comprises a perforated diaphragm valve.

9. The cannula recited in claim **4**, wherein said hemostatic valve comprises an active valve.

10. The cannula recited in claim **4**, wherein said hemostatic valve comprises a Touhy Borst valve.

11. The cannula recited in claim **1**, wherein said hemostasis means comprises an obturator cap.

12. The cannula recited in claim **4**, wherein a portion of said hemostatic valve forms an integral part of said common lumen wall.

13. The cannula recited in claim **12**, wherein said hemostatic valve lies in a plane substantially in line with the common lumen and forms an angle with an axis of the primary lumen.

14. The cannula recited in claim **4**, wherein said hemostatic valve comprises a conical portion, a semi-spherical portion and a slit portion, wherein a proximal end of the conical portion is in fluid communication with said secondary lumen, wherein said semi-spherical portion terminates a distal end of the conical portion, wherein said semi-spherical portion has an arcuate perforation therein, and wherein the slit portion is formed integral with the common lumen wall and is in registration with said arcuate perforation.

15. The cannula recited in claim **14**, wherein the slit portion lies in a plane substantially parallel to the axis of the common lumen and forms an angle with an axis of the primary lumen.

16. The cannula recited in claim **1**, wherein said percutaneous insertion means further comprises a sheath extension disposed at a distal end of said common leg.

17. The cannula recited in claim **1**, wherein said percutaneous insertion means comprises a sheath extension in fluid communication with the common lumen, for percutaneous intravascular insertion.